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THE WRITING STRATEGIES OF AMERICAN UNIVERSITY STUDENTS: FOCUSING ON MEMORY, COMPENSATION, SOCIAL AND AFFECTIVE STRATEGIES

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This study examines the self-reported strategy use of a group of 231 American students in their writing tasks. The Inventory of Learning Strategies questionnaire has been created and validated for this study, as well as a background questionnaire. The results indicate that proficient and less proficient writers use a wide variety of strategies; however, expert writers favour the use of cognitive, metacognitive and compensation strategies, followed by affective, memory and social strategies. The established relationships between the frequencies of strategy use and grade in English by means of ANOVA show that writers who get the best grades use more strategies. Women also use more strategies than men in terms of both categories and individual strategies. Finally, the pattern of writing strategies used by writers may be illustrative of their learning style.

Key words: *Learning strategies, writing strategies, native writers, strategy use, proficient writers, less proficient writers.*

Este estudio examina el uso declarado de estrategias de escritura de un grupo de 231 estudiantes americanos. El cuestionario Inventario de Estrategias de Aprendizaje se ha creado y validado para este estudio, así como un cuestionario personal. Los resultados indican que los estudiantes experimentados en expresión escrita y menos experimentados utilizan un amplio numero de estrategias, aunque los estudiantes expertos favorecen el uso de las estrategias cognitivas, metacognitivas y compensatorias, seguidas de las estrategias afectivas, de memoria y sociales. Las relaciones establecidas entre la frecuencia en el uso de estrategias y la nota en ingles por medio de ANOVA indican que los estudiantes que tienen mejores notas hacen un mayor uso de las estrategias. Las mujeres también utilizan más estrategias que los hombres tanto por categorías como por estrategias individuales. El patrón de estrategias de escritura utilizado por los escritores puede ser ilustrativo de su estilo de aprendizaje.

Palabras clave: *estrategias de aprendizaje, estrategias de escritura, escritores nativos, uso de estrategias, estudiantes competentes en expresión escrita, estudiantes menos competentes en expresión escrita.*

1. INTRODUCTION

Writing has been described as having three main activities: planning, formulating or composing and revising, which in the traditional understanding of writing was understood as a linear procedure, a strict "plan-outline-write" that had little to do with the complex activities that teachers observed in their writers' composing processes, as these were much more than building grammatically correct sentences. However, observations of writers in the process of composing resulted in a large range of recursive activities, such as gathering ideas, writing them down, composing, editing, reading, rescanning and proofreading. Such activities became fundamental in the fields of learning and educational psychology in an attempt to understand how people undertake learning tasks and how

to provide strategy instruction so that students become successful learners (Jones et al., 1987; Weinstein et al., 1988). It was the belief among cognitive psychologists that strategies are deliberate actions that learners select, implement and manage in order to carry out reading or writing tasks. As Jones et al. (1987, p. 15) explained it: "an effective learner or good strategy user knows when to use a given strategy as well as when to abandon it and select another one".

The impetus behind the present research comes from two directions. One is the desire to check what strategies native English speakers use while composing. To our knowledge, cognitive and metacognitive composing strategies have been widely studied with native learners (Hartley & Branthwaite, 1989; Torrance et al., 2000, 2007; Fidalgo et al. 2008), while other strategy types such as social and affective have been largely unexplored with the exception of the role of interest and goal orientation, despite the importance that cognitive psychology has given to motivation and cooperative learning (Bruning et al., 1999, pp. 8-9). The other direction is the wish to find out whether or not relationships can be drawn between individual strategies, strategy categories and some background variables – grade in English, gender, age and academic specialization–, since little is known about such relationships in the L1 field. If researchers are going to recommend ways to increase students use of learning strategies inside and outside the classroom, solid evidence gained from experimental studies is vital, as the teaching of strategies requires considerable time and effort on the part of teachers and students alike.

The first section presents an overview of the concepts and relevant theoretical issues that aim to contextualize the research questions. The second section deals with the materials, methods and data collection procedures used. The third section addresses the results in detail. The fourth section aims to discuss the results, shedding some light into some areas that have been little researched. The final section ends by considering the conclusions of the study.

2. THEORETICAL BACKGROUND

2.1. Learning strategies: Self-regulated learning theory and factors affecting strategy choice

Different authors at different times have attempted to classify learning strategies in classes for their study. An early taxonomy is Weinstein and Mayer's (1986) within the framework of self-regulated learning theory, which includes rehearsal, elaboration, organization, comprehension monitoring, and affective strategies, followed by McMillan's (2010) and Pintrich's taxonomies (1999, 2000, 2004), who differentiate between cognitive, affective and metacognitive or regulative learning strategies. Kellogg (1988) and Torrance et al. (1994, 2000) distinguish between cognitive and metacognitive strategies, which have been broadly researched and are considered effective ways of learning (Zimmerman, 2001; Pintrich, 2003). All those taxonomies demonstrate the interest in the factors that have have an effect on successful learning, which have been studied by learning theories such as self-regulated learning theory.

Self-regulated learning theory is a relatively recent development in cognitive psychology dealing with the cognitive, motivational, and social-contextual factors that explain learning. Such theory is used to investigate the features of learners that influence successful learning. Two components are distinguished: 'skill', which refers to the cognitive and metacognitive aspects of learning that have a direct influence on learning, and 'will', which is concerned with the affective and social-contextual factors that influence motivation, all of which support the use of strategies. 'Skill' comprises those cognitive strategies used to learn, remember and understand material (rehearsal, elaboration, and organization) and metacognitive strategies which are used to manage learning (planning, monitoring, and regulating cognition during learning). 'Will' includes goal orientation – or reasons why students undertake learning tasks - and

task value – or the students' beliefs about how important the task is for them (Mcwhaw & Abrami, 2001, p. 313).

In literature it is commonly accepted that one key aspect of self-regulated learning is the students' capability to select the appropriate strategies and combine them in such a way that they result in effective learning. Indeed, research examining the role of learning strategies in academic achievement (Hartley & Branthwaite, 1989; Khaldieh, 2000; Torrance et al., 2000) shows that high achievers report greater use of all strategies than low achievers. Also, it seems that students who are more interested in the task at hand make greater use of cognitive and metacognitive strategies than students with low interest (Mcwhaw & Abrami, 2001; Pintrich, 1989) and those who believe in their own competence in the subject are more likely to engage in the same strategy types (Greene & Azevedo, 2007). The results of different studies (Pintrich, 1999; Weinstein & Mayer, 1986) further suggest that the cognitive learning strategies rehearsal, elaboration and organizational strategies are identified with academic performance, which may go from simple tasks such as saying words aloud to other more complex tasks, such as paraphrasing, creating analogies or selecting the main idea of a text (Weinstein & Mayer, 1986). Similarly, the metacognitive strategies planning, monitoring and regulation strategies, whether in the form of setting goals, skimming a text, monitoring comprehension, detailed planning or the production of more than one draft result in successful outcomes (Hartley & Branthwaite, 1989; Pintrich, 1999; Torrance et al., 2000).

From the existent literature on learning strategies, it cannot be denied that student characteristics have an influence on learning, including understanding of content (Rachal et al., 2007), perception of the importance of getting a good grade (Torrance et al., 2000), motivation (McWhaw & Abrami, 2001; Pintrich, 1999; Rachal et al., 2007), composing for delivery (Kessler, 2005), personal beliefs, use of learning strategies, goal setting behaviours, commitment, attitude towards learning, personal esteem and self-regulation strategies (Pintrich, 2003; Rachal et

al., 2007). The relationship between learners' beliefs, motivation and attitude has been widely analysed (Pintrich, 1999; Rachal et al., 2007) and the conclusions indicate that "[s]tudents who felt more efficacious about their ability to do well in the course were more likely to report using all three types of cognitive strategies (rehearsal, elaboration, and organizational strategies)" (Pintrich, 1999, p. 465). Also, it seems that students who had high interest in a reading text show significant main effects for cognitive and metacognitive strategies than those with low interest (McWhaw & Abrami, 2001, pp. 324-5). Thus, we cannot deny that some factors do have an effect on strategy choice and cannot help wondering whether other factors such as gender and academic specialization have the same or a different relation with strategy choice. We need to turn to the L2 strategy field - where learning strategies are viewed as components of self-regulated learning - to conclude that many authors agree on finding a relationship between strategy use and learner variables, including learners' self-awareness and self-esteem, learning experience, learners' beliefs, gender, major, age, proficiency-self-rating, academic specialization and motivation. For example, women have been found to be more frequent strategy users than men (Green & Oxford, 1995; Kavasoğlu, 2009), although there are also studies that report just the opposite (Wharton, 2000); academic majors and the grade of class affect strategy use (Kavasoğlu, 2009; Kyungok, 2003) and more proficient learners employ a wider range of strategies more efficiently (Wharton, 2000). Also, females show more use of social, memory and metacognitive strategies (Kavasoğlu, 2009), greater use of functional practice strategies, strategies for searching and communicating meaning, and self-management strategies (Ehrman & Oxford, 1989). Such results were concluded after having learners complete taxonomies of learning strategies to find out about their strategy use[1]. While these results suggest a direct relationship between strategy use and learner variables in the L2 field, in this study we attempt to find out whether the same relationship holds in the L1 field.

2.2. Writing strategies: Definition and classifications

Pedagogic interest in strategies has characterized the field of L1 composition in an attempt to understand how competent writers differ from less expert writers and to understand the more effective ways of writing. Writing strategy is defined as "the sequence in which a writer engages in planning, composing, revising and other writing related activities" (Torrance et al., 2000, p. 182). The study of strategies is part of a research movement called "process writing", which aims at gaining insight into the mental processes that writers engage in while composing. Within the process tradition composition is viewed as a goal-oriented, cognitively-demanding, problem-solving task (Bereiter & Scardamalia, 1987; Flower & Hayes, 1980, 1981a, 1981b; Hayes, 1996; Torrance & Jeffery, 1999) and writing strategies are seen as those procedures employed by the writer to (i) control the online management of goals, (ii) compensate for the limited capacity of human cognitive resources and (iii) overcome the problems that writers pose to themselves. The present study draws on Bereiter and Scardamalia's (1987) work in which he made a distinction between "knowledge-telling" and "knowledge-transforming". The former is typical of novice writers in which content is retrieved from memory and then written down without shaping their knowledge to the readers' needs, while the latter is employed by more expert writers in which content retrieval involves goal setting, direction, and problem analysis. Thus, writers shape their knowledge to meet the readers' demands.

A major focus of attention for cognitive psychologists is to specify the differences between expert and novice writers in terms of knowledge and processes. According to Bruning et al. (1999, pp. 194-6), expert writers share some common characteristics: (1) they organize information more efficiently by chunking information into larger units, (2) they are faster than novice writers at processing information because they search and represent problems more efficiently, (3) they have thoughts and actions that are highly automatized, (4) they pay more attention to the underlying nature of a problem rather than to superficial matters, (5) they spend more time

analyzing the problem, (6) they break problems into subproblems and (7) they are better monitors within their domain of expertise.

For describing writing strategies, different schemes have been used in the L1 and L2 fields. In the L1 field some researchers deal with a *five-factor structure* that considers the relationship between writers' beliefs on writing and the strategies that they employ: elaborative, low self-efficacy, no revision, scientist and task-oriented (e.g., Lavelle & Bushrow, 2007). Other L1 researchers use a *two-dimensional structure* to describe strategies: the first stage concerns the stage in the writing process at which writers decide content (Galbraith, 1992), while the second concerns the extent to which writers explore and reformulate their ideas and text (Hartley & Branthwaite, 1989). In the L2 field, some researchers (Hirose & Sasaki, 1994) have created a *three-factor structure* including planning, formulation or transcription and revising, which have been identified with the three macro-writing processes. Some others have created a *four-factor structure*: planning, monitoring, evaluating and resourcing, which are metacognitive strategies themselves (Victori, 1997), and still others have used a *six-factor analytically-created composing strategy taxonomy*, which includes memory-related, cognitive, compensation, metacognitive, social and affective strategies (Khaldieh, 2000) and is based on Oxford's (1990) taxonomic approach. These L2 classifications include a whole array of writers' behaviours, such as reading the assignment, pausing, repeating, using the L1 or editing. While such multiplicity of categorizations have no doubt helped to build a composite picture of the writers' behaviours while writing, they have also contributed to create a confusing image of what writing strategies are; that is, whether writing strategies equate with any writing behaviour or only with some writing behaviours. In this study we have created our own taxonomy of writing strategies based on Bereiter and Scardamalia's (1987) model, which distinguishes between the expert and novice writers' writing behaviour, and on Oxford's model and, therefore, we have distinguished between memory, cognitive, compensation, metacognitive, social and affective stra-

tegies. The strategies have been selected from Khaldieh's (2000) listing and Petrić and Czárl's (2003) questionnaire and from the existing literature on writing strategies (e.g., Hartley & Branthwaite, 1989; Kellogg, 1986; Torrance, Thomas & Robinson, 1994, 2000). In L2 research, Hsao and Oxford (2002) confirmed the relevance of focusing on strategies for explaining writer behaviour. Hsao and Oxford also suggested that strategy constructs may be part of not only learning, but also writing strategies. In L1 research, Vermunt (1996) explained cognitive, metacognitive, and affective strategies as combinations of activities that people employ to learn and are, therefore, part of the writer behaviour. The reasoning behind the methodological decision of creating our own taxonomy based on Oxford's model is that, unlike cognitive and metacognitive strategies, little is known about the other strategy types in the L1 field and, thus, this study attempts to find out what memory, compensation, social and affective strategies L1 writers use and their relationship to some contextual variables.

3. MATERIALS AND METHODS

3.1. Participants

The participants in this study involved 231 American undergraduate students taking English writing courses in the US, of whom 66 studied Engineering; 42, Biology, Physics, Mathematics, Chemistry and Computer Science; 14, Liberal Arts majors; 26, Health and Human Sciences; 16, Agricultural and Animal Sciences; 59, Accounting, Economics, Management and Business; and 6 had not decided their major yet. The majority of participants were American, except for two that were British and Persian. English was also the language they used at home for the majority of students; only five acknowledged using another language, such as Spanish, Italian, French, and American Sign Language.

As all American students, the participants in the present investigation had studied writing through high school and at college level. Therefore, they had experience on writing argumentative and descriptive writing, but they lacked the expertise of professional writers. At the time of this study, the participants were taking a writing course to complete their degree. They received instruction in organization, audience, style and research-based writing. Business writing (English 420) was required for Management, Consumer and Family Sciences and most science majors. Other students learning Agriculture, Engineering, Liberal Arts and Organizational Leadership and Supervision majors had to select an advanced English class, such as English 108 or 421. English 106 was a freshman composition course taken by students from all majors, unless they had taken a test on it and had passed it. The students spent 5 hours a week in class during a 16-week semester. Their grades were determined by the performance in student participation, two or more papers and a research paper. Some instructors also included as part of their grade other activities, including a multi-media project, quizzes and a community writing project.

3.2. Instrument

The instrument used to collect data was the Inventory of Learning Strategies (see Appendix 1), which was especially created for this study. It is a Likert-type measure test that examined the frequency with which students used writing strategies. It was based on Oxford's (1990) in the L2 strategy field, since we believed that "[c]omparing self-regulation models from areas of psychology with the learning strategy models in foreign languages demonstrates that the two fields can benefit greatly from the other's knowledge" (McDonough, 2001, p. 326). The Inventory asked respondents to say on a 5-point scale how frequently they used the strategies that were indicated. For example, in response to the statement "I read my composition to feel its sound", the respondents chose one of the following options: 1. *never or almost never true of me*, 2. *generally not*

true of me, 3. *somewhat true of me*, 4. *generally true of me*, or 5. *always or almost always true of me*. As in previous studies of learning strategies (Oxford, 1990), the survey involved six subgroups of writing strategies - memory, cognitive, compensation, metacognitive, affective, and social strategies – that were selected from the existing literature on writing strategies (Hartley & Branthwaite, 1989; Kellogg, 1986; Khaldieh, 2000; Petrić & Czárl's, 2003; Torrance et al., 1994, 2000). The items were rewritten and revised by an expert panel comprised of three composition lecturers who were accustomed to dealing with English writing. The survey contained a listing of 47 written statements, each of which presented an assertion about the use of a writing strategy to find out when and how students planned, wrote and revised their texts. The Inventory of Learning Strategies was accompanied by a background questionnaire designed to elicit information on the students' age, gender, nationality, mother tongue, course currently studied, major, status at university, and final grade obtained in the latest English class taken.

As different authors suggest (e.g., Alderson & Banerjee, 1996; Hatch & Lazaraton, 1991), the Inventory of Learning Strategies had to be checked for validity and reliability using different methods applicable to questionnaires, which are parallel form, internal consistency and test-retest. Parallel form was disregarded, as "it would have been difficult to prove that the two forms of each item have the same underlying meaning and […] questionnaire length would become a factor to consider" (Petrić & Czárl, 2003, p. 191). The test-retest method, which consisted in giving the same test twice to the same group of students to check if the test elicited consistent answers, was difficult to implement in this study due to practical reasons: the research was carried out in a foreign university and, thus, the researcher had limited access to students and lecturers. Therefore, for the internal consistency test, which measures a single underlying construct, the Cronbach's alpha was chosen as the most appropriate reliability index. This decision was also based on the considerable evidence of its efficiency when testing reliability in other studies based on ques-

tionnaires (e.g., Lavelle & Bushrow, 2007; Oxford, 1990; Petrić & Czárl, 2003). The coefficient obtained was .881, which suggests high internal consistency.

For establishing validity, three types of tests were considered: content, construct and response validity, as suggested in the literature on validation of data collection instruments in classroom research (e.g., Alderson & Banerjee, 1996; Converse & Presser, 1986). Content validity was established by having three expert researchers and teachers of English composition and rhetoric read the instrument draft. They offered suggestions for clarification, appropriate wording of statements and expressed their opinions about the relevance of some items for the purpose of the study. As a result of the content validity check, wording problems were solved, some items were eliminated and others were specified in greater detail.

The questionnaire was also tested for response validity, whose aims were to check that the participants understood the wording and content of the items, to verify the general division of the questionnaire into parts and to corroborate whether or not the students selected the appropriate response. For that purpose, two graduate students were asked to provide feedback on the instrument. Their responses resulted in some more additional wording changes.

For establishing construct validity, the procedures suggested included the statistical method, factor analysis and comparison with theory. To measure an ability or trait, factor analysis identifies whether the variables relate to the construct that is being measured. For that purpose, variables were grouped into clusters according to common underlying factors, thus, showing whether the instrument was homogeneous or heterogeneous. Problems related to the use of factor analysis include having an appropriate sample size; screening variables that do not correlate with each other (if our test questions are measuring the same dimensions, we would expect them to correlate with each other, because they are measu-

ring the same thing); and interpreting results and, therefore, these should be taken with caution (Field, 2005). In this study, the KMO (Kaiser-Meyer-Olkin) measure of sampling adequacy was .766, which was satisfactory since it was greater than .05.

The construction of the questionnaire also had a theoretical basis, since it was informed by the literature on first language writing. The questionnaire was based on Flower and Hayes's (1980) cognitive model of the L1 writing process, which emphasized the recursiveness of the writing process and the three components it is formed of: planning, transcribing and reviewing. This was reflected in the strategies selected, which dealt with all three components. Such model also connects with Oxford's (1990) model, since it is informed by Flower and Hayes's and Bereiter and Scardamalia's (1987) cognitive models.

4. DATA COLLECTION PROCEDURES

To collect the data, all English instructors were sent an email requesting their participation in the survey. Those that agreed to participate in the study were informed about the research purpose in greater detail and a date for administering the instrument was decided. On the day appointed for the survey, the students were given a 5-minute talk to explain the purpose of the research being undertaken and the procedure to fill in the survey and the background questionnaire. Some instructions had also been included in the online survey in case they needed to go back to them for clarification. Any questions or problems were also solved at this point. In total, 4 complete classes of English 106, 3 of English 108, 4 of English 420 and 6 of English 421 were surveyed. Student participation was voluntary and students were informed that their results would not influence their final grade and that complete confidentiality was assured. Almost all students participated, yielding a response rate of 98%. The survey was completed online and the data was gathered in Qualtrics survey software.

Descriptive statistics (means, standard deviations, frequencies, and percentages) were calculated using SPSS version 18. In addition, how certain background variables affected frequency of strategy use and the six strategy subgroups were examined with the ANOVA test. When significance at $p<.05$ was indicated, post-hoc tests were run to determine where the differences occurred. Throughout the study significance at $p<.05$ was reported.

Pearson chi-square tests were used to examine each item of the Inventory of Learning Strategies by significance variation for gender and the latest grade in English obtained[2]. If there was a significant relationship between grade in English and frequency of strategy use, then the students with the higher grades used them more frequently or less frequently than the students that obtained lower grades.

To determine the type of relationship between grade in English and frequency of strategy use, Wharton's (2000, p. 214) stairstep pattern was looked for in the results and the same categorization was employed. The strategy was categorised as showing *positive variation* if the percentages of participants reporting high use increased as their grade in English increased and the percentages of participants reporting low use increased as their grade in English fell. The strategy had *negative variation* if the students with the lowest grades in English reported greater use of that strategy than the more proficient students. Strategies that showed a mixture of the two patterns were categorised as showing *mixed variation* (see Figures 1 and 2 below).

5. RESULTS

5.1. Strategy use

The mean of overall strategy use was 3.07 out of 5.0 with more than 63% of students having a mean average of 3.07 or over, which may be considered as medium strategy use. Descriptive statistics were calculated for a number of background variables (see Table 1).

The ANOVA tests revealed that only one background variable showed significant main effect on frequency of strategy use. This was grade in English with the strongest main effect ($p<.001$). No significant main effect was found for gender, course level, major and status at university. There was also no interaction effect for gender when combined with course level, major and status at university.

Post hoc Scheffé test on the variable grade in English showed significant difference between the group of students who obtained an A and those who obtained a B ($p<.008$). However, the significance level was higher between the group of students who had an A and the group who had a C ($p<.005$).

1. Gender				
	n	%	M	SD
Male	151	65.7	3.12	.46
Female	79	34.3	3.32	.41

2. Course level				
	n	%	M	SD
106	46	20	3.20	.43
108	32	13.9	3.44	.43
420	90	39.1	3.16	.44

421	62	27	3.11	.46

3. Status at university				
	n	%	M	SD
Freshman	62	26.8	3.28	.43
Sophomore	20	8.7	3.21	.58
Junior	70	30.3	3.15	.47
Senior	79	34.2	3.15	.43

4. Grade in English				
	n	%	M	SD
A	159	69.1	3.26	.44
B	62	27	3.07	.45
C	9	3.9	2.79	.40

TABLE 1. FREQUENCY OF STRATEGY USE BY GENDER, COURSE LEVEL, STATUS AT UNIVERSITY, AND GRADE IN ENGLISH[3].

5.2. Strategy use in the six strategy categories in the Inventory of Learning Strategies

The means and standard deviations for the six strategy categories were in decreasing order of importance as follows: metacognitive strategies (M = 3.45, SD = .58), cognitive strategies (M = 3.36, SD = .52), compensation strategies (M = 3.16, SD = .60), social strategies (M = 2.98, SD = .84), memory strategies (M = 2.78, SD = .62), and affective strategies (M = 2.67, SD = .61).

Per strategy groups, the ANOVA tests showed significant relationships between grade in English and the six strategy categories (see Table 2). However, cognitive and metacognitive strategies had the stron-

gest significance level (p<.001). Post hoc tests revealed that there was a significant difference (p<.005) between grades A and B and A and C for cognitive and metacognitive strategies, between A and B for social strategies and between A and C for affective strategies (i.e. greater use by the former groups). Cognitive and metacognitive strategies were followed in order of importance by social, affective and memory strategy types. Also, for five strategy categories – memory, cognitive, compensation, metacognitive, and social strategies – the number of strategies increased as the students' proficiency also increased and, therefore, they showed positive variation.

Regarding gender, the means for women were higher in all groups, thus, they were more frequent strategy users. Also, all strategy groups were significant except for memory and affective strategies.

1. Independent variable: Grade in English

	Grade A		**Grade B**		**Grade C**			
Dependent variable: Strategy categories	M	SD	M	SD	M	SD	F and significance level	Post hoc Scheffé
Memory	2.83	.60	2.73	.63	2.50	.69	3.06 (p<.049)	
Cognitive	3.43	.50	3.22	.51	2.88	.40	7.79 (p<.001)	A>B A>C
Compensation	3.21	.61	3.09	.57	2.79	.55	ns	
Metacognitive	3.53	.56	3.29	.59	2.97	.56	6.81 (p<.001)	A>B A>C
Social	2.75	.61	2.50	.59	2.75	.24	3.84 (p<.023)	A>B
Affective	3.04	.84	2.94	.84	2.41	.79	3.40 (p<.035)	A>C

II. Independent variable: Gender

	Women		Men			
Dependent variable: Strategy categories	M	SD	M	SD	F and significance level	Comments
Memory	2.81	.61	2.77	.63	ns	
Cognitive	3.50	.47	3.29	.53	8.71 (p<.003)	
Compensation	3.32	.59	3.08	.59	8.11 (p<.005)	
Metacognitive	3.61	.56	3.37	.58	9.39 (p<.002)	
Social	2.83	.61	2.59	.60	8.38 (p<.004)	
Affective	3.09	.84	2.93	.84	ns	

TABLE 2. STRATEGY USE PER CATEGORIES IN THE INVENTORY OF LEARNING STRATEGIES

5.3. Individual strategy use by grade in English in the individual strategies

Fisher's tests results indicated that there was a significant relationship between grade in English and frequency of strategy use for 16 strategies. Out of these, 10 strategies showed positive variation, that is, the higher the student's proficiency level, the more strategies s/he used (see Table 3. The stairstep pattern for positive variation is evident in Figure 1). The rest (n = 6) showed mixed variation, while no significant strategy showed negative variation (the no stairstep pattern for mixed variation can be observed in Figure 2). Therefore, this study provides evidence to affirm that more strategies were used as the proficiency level increased. Closer examination further reveals that 4 strategies demonstrated both a significant relationship for grade in English and gender.

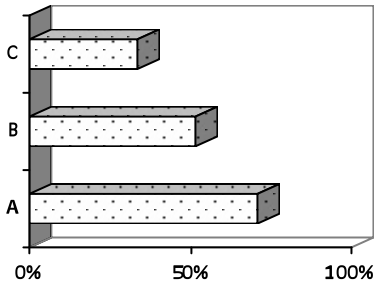

FIGURE 1. EXAMPLE OF STAIRSTEP PATTERN CLASSIFIED AS POSITIVE: STRATEGY 5.6 AFFECTIVE

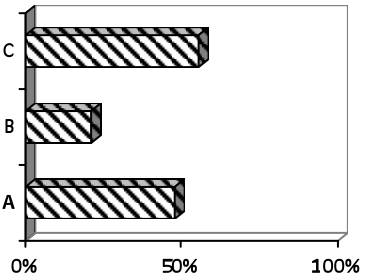

FIGURE 2. EXAMPLE OF NO STAIRSTEP PATTERN CLASSIFIED AS MIXED: STRATEGY 5.1 AFFECTIVE

Item	**% high use (4 or 5)**			**Fisher's test**	**Variation by gender**
	A	**B**	**C**		
Positive variation (the higher the grade in English, the more frequently the strategy is used)					
5.6. AFF I have confidence in my own capacity for writing.	70.89	51.61	33.33	0.000	
4.7. MET I frequently think of my audience so as to adjust my text to their needs.	57.86	46.77	0	0.003	
3.6. COM I make short pauses while writing my composition to consider what I have written so far.	72.15	59.02	22.22	0.005	W>M
2.2. COG I reread frequently in an attempt to find out what I want to say.	69.18	61.29	33.33	0.008	
2.9. COG I compare my composition with my plan or outline to see how well they match or to consider changes.	40.25	30.05	0	0.014	
4.2. MET I plan my composition in advance or while writing either mentally or in writing.	71.70	54.84	33.33	0.015	W>M
2.8. COG I move paragraphs around in an attempt to organize my writing in a more coherent way.	42.14	27.42	11.11	0.024	
2.11. COG I read my composition aloud to "feel" its sound.	45.57	32.26	11.11	0.027	W>M
4.8. MET I pay attention to aspects such as thesis statements, topic and supporting sentences.	69.18	59.68	22.22	0.029	W>M
4.12. MET I have a set of priorities when revising my composition: first, ideas and organization and then grammar and spelling concerns.	53.16	38.71	33.33	0.031	

TABLE 3. STRATEGIES SHOWING SIGNIFICANT VARIATION (p< 0.05) BY GRADE IN ENGLISH

Item	% high use (4 or 5)			Fisher's test	Variation by gender
	A	B	C		
Mixed variation (no stairstep pattern) 5.1. AFF I encourage myself to find a better solution to a linguistic problem in my composition.	47.77	20.97	55.56	0.000	
4.11. MET I follow a certain organization in my composition that would help my readers understand my point.	70.44	43.55	44.44	0.001	W>M
2.5. COG I try to put my meaning on paper as quickly as possible so as not to forget my ideas even if I experience spelling or grammatical problems.	53.46	67.74	22.22	0.018	
1.1. MEM I relate my composition topic to my background knowledge.	74.84	77.42	55.56	0.027	
4.13. MET I know the characteristics of good essays.	77.36	58.06	77.78	0.029	
4.9. MET I write with a specific purpose in mind (i.e. to convince, inform, narrate an event and so on).	77.99	64.52	66.67	0.043	

Item	% high use (4 or 5)		Fisher's test	Variation by grade in English
	Women	Men		
Used significantly more often by women				
3.6. COM I make short pauses while writing my composition to consider what I have written so far.	83.33	58.33	0.000	positive
4.11. MET I follow a certain organization in my composition that would help my readers understand my point.	76.92	54.97	0.005	mixed
2.6. COG I write different drafts of my composition.	42.31	26	0.007	
4.2. MET I plan my composition in advance or while writing either mentally or in writing.	76.92	60.26	0.008	positive
5.3. AFF I motivate myself to keep writing by saying "come on", "go on", "you can do it".	38.46	22.67	0.020	
2.4. COG I reformulate the linguistic expression when I am not sure it is right.	77.92	60.67	0.026	

4.4. MET I go back to my plan to consider the ideas I have written down and to reformulate them if I feel they are flawed.	58.97	43.05	0.028	
4.3. MET I plan the content and organization of my composition.	71.79	55.63	0.030	
2.3. COG I review previous sections of the text when I find a mismatch between my written text and the ideas I want to express.	76.92	62.91	0.032	
4.8. MET I pay attention to aspects such as thesis statements, topic and supporting sentences.	75.64	58.94	0.036	positive

TABLE 4. STRATEGIES SHOWING SIGNIFICANT VARIATION ($p < 0.05$) BY GENDER

The Fisher's test also shows that the majority of the strategies (n = 31) were not significant for grade in English and frequency of strategy use. However, it is true that for 8 strategies at least 50% of the students reported high use, which proves their popularity. It is worth commenting that they were all either cognitive or metacognitive strategies and 5 of them also showed variation by gender.

5.4. Individual strategy use by gender

Fisher's tests revealed that 10 strategies were statistically significant by gender (see Table 4). All of them were reported to be more frequently used by women. Three also showed positive variation and one mixed variation. Further examination showed that the majority of strategies (n = 37) were also non-significant by gender and all strategies but four were more frequently used by women. Also, 17 of the strategies presented at least 50% of high use by women.

6. DISCUSSION

6.1. Strategy use and grade in English

The results of the ANOVA tests and post hoc Scheffé tests reveal that the participants who obtained an A or B in English used the

six categories of the Inventory of Learning Strategies significantly more often than those who obtained a C. Also, the students that had an A in English used a higher mean average of strategies across all strategy types than those who had a B and those who had C, while those students that had obtained a B in English had a higher mean average of strategies than those that had obtained a C. There is therefore a linear relationship between frequency of strategy use and grade in English, as suggested in studies about cognitive and metacognitive strategy use, such as Weinstein and Mayer (1986), Hartley and Branthwaite (1989) and Torrance et al. (2000). However, this study also concludes that the same is true for the rest of strategy types, i.e., memory, compensation, social, and affective, which suggests that they should also be carefully considered, as they also contribute to successful learning. Further research should be conducted to examine whether the same is true for different groups of native English writers with different writing background as the results may vary.

Regarding the specific strategies, the majority of the significant strategies also showed positive variation; therefore, the higher the writers' proficiency in English, the more strategies they used. Six people showed mixed variation and none showed negative variation, which again testifies for a linear relationship between strategy use and grade in English. Closer examination demonstrates that cognitive and metacognitive strategies predominated over the rest of the strategies that were both statistically significant and showed positive variation, evidence of their importance for good writing, while none was either of the memory or social types; thus, they had little importance for the writers in this study. Also, there was one compensation (COM 3.6) and one affective strategy (AFF 5.6), with the latter having the strongest main effect ($p<.000$); therefore, the students with the highest grades were the most confident in their capacity for writing. In accordance with previous studies (Torrance et al., 2000) cognitive and metacognitive strategies are of upmost importance for successful writing; however, it also seems that compensation and affective factors cannot be disregarded as less important. On the

contrary, those writers that obtained the highest grades showed high rates of use compared to those with lower grades. Writers should therefore be encouraged to use them in their writing, while strategy training is also called for effective use.

Closer examination reveals that, while it is true that most of the strategies in the questionnaire did not show significant variation by grade, they were still typical of proficient and less proficient writers, who used them in high proportions. For example, cognitive and metacognitive strategies were the most frequently employed by the writers in this study and, yet, some of them were not significant by grade in English, although 50% or more of the students reported high use, such as COG 2.12 "I read my composition aloud to feel its sound" and MET 4.6 "I think if my ideas are clear as they are on paper". Four cognitive and metacognitive strategies were used moderately (from 20% to 49%) and two were used infrequently (from 0% to 20%), the latter probably due to the fact that they involved long term decisions about the students' writing.

6.3. Strategy use and gender

The results in this study indicate that women report to be more frequent strategy users than men across all strategy categories. Also, all strategies showing significant variation were more often used by women as well as 33 out of the 37 non-significant strategies. Our findings support previous studies (Fidalgo et al., 2008; Hartley & Branthwaite, 1989; Torrance et al., 2000, 2007) that stress the importance of metacognitive and cognitive strategies, since the mean rates were the highest of all and all except for two of the strategies showing significant variation were of the cognitive and metacognitive types, which require the writer to be reflective and to be concerned with the global aspects of writing. Also, as concluded in Oxford (1993), this study coincides in finding strategies that are typical of women's learning styles and female L2 learners; for example, items 4.2, 4.3 and 4.11 may be considered global in nature and

items 2.3, 2.4 and 4.4 may be indicative of a reflective type of learner, one who is concerned with answering correctly. However, this study also finds evidence to affirm that women also employ strategies from medium to high proportions that serve to compensate for missing knowledge, memorize new items, improve their writing through interacting with peers and friends and motivate themselves, which make them more suitable to write successfully. Indeed, the overall rate for compensation strategies for women is 3.32; thus, it resembles those of metacognitive and cognitive strategies (3.61 and 3.50, respectively) and are followed by affective, memory and social strategies. Although in lower proportions, men used the same strategy types; therefore, they should be considered as part of writers' strategy inventories.

Examination of the individual strategies further reveals that women act as compensators and motivators when writing, which no doubt influences them into writing efficiently. For example, the compensation strategy 3.6 "I make short pauses while writing my composition to consider what I have written so far" obtained the highest rate of use (over 83%), followed by the affective 5.3 "I motivate myself to keep writing by saying 'come on', 'go on', 'you can do it'" (over 38%). These results should be corroborated with the results of other studies to check whether women act as compensators and motivators, they can be found in women from other cultures and first languages, which implies that they belong to women's learning styles. As for the men's strategy use, we could also expect men to pay little attention to memory, compensation and affective strategies, as they are less emphasized in writing classes, and yet, these were the only ones in which men outnumbered women.

7. CONCLUSIONS

This study contributes to the study of the writing strategy use of native English writers in a university setting. While previous studies have focused on cognitive and metacognitive strategy use and training

and have not considered other strategy types, this study proves that native writers employ a variety of other strategies, such as memory, compensation, social and affective strategies, which contribute to successful writing, as found in ESL/EFL settings. Indeed, the results indicate that writers employ compensation strategies to a similar rate, followed by affective, memory and social strategies; therefore, they should be considered in studies about writers' strategy use and training. Also, this study contributes to draw a linear relationship between frequency of strategy use and grade in English, with a pattern of increasing strategy use at progressively higher grades regardless of setting and culture. However, this conclusion does not only apply to cognitive and metacognitive strategies, but also to affective and compensation strategies. And even the strategies that are not significant by grade in English are popular among proficient and less proficient writers, which suggests that they are used as an aid in the course of writing. This is particularly true of cognitive and metacognitive strategies and less so in the rest of the strategy types.

This study is consistent with previous results on individual strategy use, as this study also concludes that the women in this study report to be more frequent strategy users than men per categories and per individual strategies, while the types of strategies they use illustrate their learning styles as reflective and global learners, as found in the L2 field.

Notes

1 One of the most-well known taxonomies is Oxford's SILL (i.e., Strategy Inventory of Language Learning) (1990), which was created to find out about the learning strategy use of English as a second language learners and has also been used in writing research (Khaldieh, 2000). Oxford distinguished two strategy orientations and six strategy groups. The direct strategy orientation, which is directed at learning the language itself, is divided into three subclasses - memory, cognitive and compensation strategies - while the indirect learning

orientation is concerned with the general management of learning and involves metacognitive, affective and social strategies.

2 Following the statisticians' advice, the Pearson chi-square tests in the SPSS software package are not appropriate if any expected frequency is below 1 or if the expected frequency is less than 5 in more than 20% of the cells. When this is the case, some cells may be combined. In this study, some frequencies were below 1 and, therefore, the five degrees of strategy use - 1. never or almost never true of me, 2. generally not true of me, 3. somewhat true of me, 4. generally true of me, and 5. always or almost always true of me – were combined into three – low use (1 or 2), medium use (3) and high use (4 or 5) and the four grades A, B, C, and D – were collapsed into three – A, B, and C (C and D). However, even after combining them the frequency was below 1 for some items, which made it necessary to run Fisher's exact test.

3 The number of participants does not add up to 231 because of missing answers.

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APPENDIX 1

INVENTORY OF LEARNING STRATEGIES

In this strategy inventory you will find statements about writing in English. Please, read the statements. Please, circle the appropriate number 1, 2, 3, 4, or 5 which tells HOW TRUE OF YOU THE STATEMENT IS.

1. Never or almost never true of me.
2. Usually not true of me.
3. Somewhat true of me.
4. Usually true of me.
5. Always or almost always true of me.

NEVER OR ALMOST NEVER TRUE OF ME means that the statement is *very rarely* true of you.

USUALLY NOT TRUE OF ME means that the statement is true *less than half of the time*.

SOMEWHAT TRUE OF ME means that the statement is true of you *about half of the time*.

USUALLY TRUE OF ME means that the statement is true *more than half the time*.

ALWAYS OR ALMOST ALWAYS TRUE OF ME means that the statement is true of you *almost always*.

Answer in terms of *how well the statement describes you*. Do not answer in terms of what you would like to do or what other people think you should do. Remember that *there are no right or wrong answers*, since each writer writes differently. Write the answer (1, 2, 3, 4, or 5) on the separate answer sheet. If you have any questions, ask the researcher.

PART A: Memory strategies

A: Never true, B: Usually not true, C:Somewhat true, D:Usually true, E:Always true

	A	B	C	D	E
1. I relate my composition topic to my background knowledge.	1	2	3	4	5
2. I use new words in a sentence so that I can remember them.	1	2	3	4	5
3. I memorize new English words by writing them down several times.	1	2	3	4	5
4. I revise my old compositions so as not to forget the mistakes I made and how to solve them.	1	2	3	4	5

PART B: Cognitive strategies

A: Never true, B: Usually not true, C:Somewhat true, D:Usually true, E:Always true

	A	B	C	D	E
5. I try out different ideas either orally or in writing to find out what I want to say.	1	2	3	4	5
6. I reread frequently in an attempt to find out what I want to say.	1	2	3	4	5
7. I review previous sections of the text when I find a mismatch between my written text and the ideas I want to express.	1	2	3	4	5
8. I reformulate the linguistic expression when I am not sure it is right.	1	2	3	4	5
9. I try to put my meaning on paper as quickly as possible so as not to forget my ideas even if I experience spelling or grammatical problems.	1	2	3	4	5
10. I write different drafts of my composition.	1	2	3	4	5
11. I read books or good writers' compositions to improve my writing.	1	2	3	4	5
12. I move paragraphs around in an attempt to organize my writing in a more coherent way.	1	2	3	4	5
13. I compare my composition with my plan or outline to see how well they match or to consider changes.	1	2	3	4	5
14. I put aside my writing for a few days to reconsider my thoughts with a fresh mind.	1	2	3	4	5

	A	B	C	D	E
15. I read my composition aloud to "feel" its sound.	1	2	3	4	5
16. I use transition words ("thus", "however", "nevertheless" and so on) in my composition that would help my reader to understand my point.	1	2	3	4	5
17. I choose words and expressions that are formal when I write formally and informal forms when I write informally.	1	2	3	4	5

PART C: Compensation strategies

A: Never true, B: Usually not true, C:Somewhat true, D:Usually true, E:Always true

	A	B	C	D	E
18. I use synonyms when I can't find the word I mean.	1	2	3	4	5
19. I use the dictionary to find out words that I don't know how to express in English.	1	2	3	4	5
20. I repeat in an attempt to keep my writing going.	1	2	3	4	5
21. I make guesses when I can't find the exact word that I need.	1	2	3	4	5
22. I use sources when I don't have enough ideas to complete my composition.	1	2	3	4	5
23. I make short pauses while writing my composition to consider what I have written so far.	1	2	3	4	5

PART D: Metacognitive strategies

A: Never true, B: Usually not true, C:Somewhat true, D:Usually true, E:Always true

	A	B	C	D	E
24. Before starting to write or while writing I make decisions about the content, organization of my composition and the linguistic expression and how I should do about them.	1	2	3	4	5
25. I plan my composition in advance or while writing either mentally or in writing.	1	2	3	4	5
26. I plan the content and organization of my composition.	1	2	3	4	5

	A	B	C	D	E
27. I go back to my plan to consider the ideas I have written down and to reformulate them if I feel they are flawed.	1	2	3	4	5
28. I set myself long-term and short-term goals for improving my writing.	1	2	3	4	5
29. I think whether or not my ideas are clear as they are on paper.	1	2	3	4	5
30. I frequently think of my audience so as to adjust my text to their needs.	1	2	3	4	5
31. I pay attention to aspects such as thesis statements, topic and supporting sentences.	1	2	3	4	5
32. I write with a specific purpose in mind (i.e. to convince, inform, narrate an event and so on).	1	2	3	4	5
33. I am concerned with my lack of writing fluency and do something about it.	1	2	3	4	5
34. I follow a certain organization in my composition that would help my readers understand my point.	1	2	3	4	5
35. I have a set of priorities when revising my composition: first, ideas and organization and then grammar and spelling concerns.	1	2	3	4	5
36. I know the characteristics of good essays.	1	2	3	4	5
37. I am aware of the effectiveness of the strategies that I employ for my writing.	1	2	3	4	5

PART E: Affective strategies

A: Never true, B: Usually not true, C:Somewhat true, D:Usually true, E:Always true

	A	B	C	D	E
38. I encourage myself to find a better solution to a linguistic problem in my composition.	1	2	3	4	5
39. I reward myself when I'm given a good grade in a composition.	1	2	3	4	5
40. I motivate myself to keep writing by saying "come on", "go on", "you can do it".	1	2	3	4	5
41. I write a diary to write how I feel about my writing.	1	2	3	4	5

	A	B	C	D	E
42. I try to overcome feelings of frustration, sadness, etc. when my writing is not as good as I would like to.	1	2	3	4	5
43. I have confidence in my own capacity for writing.	1	2	3	4	5

PART F: Social strategies

A: Never true, B: Usually not true, C:Somewhat true, D:Usually true, E:Always true

	A	B	C	D	E
44. I seek assistance when I have linguistic problems that I cannot solve or I ask another person to revise my composition.	1	2	3	4	5
45. I seek opportunities to improve my writing, such as writing frequently for other people (emails, chat, letters, and others).	1	2	3	4	5
46. I give my writing to a friend or someone who is good at writing so that I have an opinion about my writing.	1	2	3	4	5
47. I compare my composition with my classmates' compositions.	1	2	3	4	5

BACKGROUND QUESTIONNAIRE

1. Age__ 2. Sex:__ 3. Mother tongue:__ 4. Nationality: __

5. Circle the course level you are taking: 106-108-205-420-421

6. Language(s) you speak at home including your mother tongue:

7. Do you enjoy language learning? (Circle one) Yes No

8. What languages have you studied?

9. What has been your favorite experience in language learning?

10. What's your major?

11. Are you a graduate or an undergraduate student? (Circle one)

Freshman Junior Sophomore Senior Graduate

12. What was your final grade/mark last year in English?
13. Can you list any other writing strategies that you use that lead to successful writing?
14. Can you list any writing strategies that you use that do not lead to successful writing?

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